

Application No.: 10/771863

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REMARKS

Favorable reconsideration is respectfully requested in light of the amendments made above and the following comments. Applicant respectfully requests entry of this amendment because no claim amendments are being made, and after entry and consideration of this amendment, Applicant respectfully requests that the application will be in condition for allowance.

Applicant respectfully disagrees with all assertions made in the Office Action, including any and all statements not expressly addressed herein.

Claim Rejection under 35 U.S.C. § 103

Claims 1-31 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kusano et al. (U.S. Patent No. 6,386,710) in view of Schrenk et al. (U.S. Patent No. 5,872,653) and Katsumata et al. (U.S. Patent No. 6,829,090). Applicant respectfully traverses this rejection.

Polymeric Film

The Office Action asserts that Kusano teaches in figure 2 a polarizing beam splitter comprising: a polarizing film (1d); and a first rigid cover (1a) disposed on the polarizing film. Applicant has disagreed with this assertion in the past and continues to disagree with it herein.

The Office Action points to column 7, lines 45-50 of Kusano as clearly teaching that layers 1d and 1e are polarizing and separating films and not merely the surface of the prism. Applicant disagrees that this statement, especially in isolation, can be used to determine what the reference as a whole teaches. According to MPEP § 2142.02(VI), the prior art must be considered in its entirety. Applicant respectfully asserts, that even though that particular portion of Kusano may appear to disclose a polarizing film, the reference taken as a whole discloses that 1d and 1e are not films but are instead surfaces.

The abstract of the disclosure states that the polarized beam splitter has a pair of prisms and an adhesive layer held between the pair of prism. The summary of the invention also states that the polarized beam splitter includes a pair of prisms with an adhesive layer between the two (Kusano, column 3, lines 16-18; lines 61-67; and column 4, lines 33-36); there is no mention of films on the prisms. There is no disclosure regarding what kinds of films 1d and 1e may be, no

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alternatives for types of films, and no mention of fabrication methods or commercial availability of the film coated prisms. Even if all of those omissions were not present, the refractive indexes of the films are not discussed. This fact is important evidence that there is not a film on the prisms but that the "films" are simply surfaces of the prisms.

The device of Kusano functions based largely on the refractive indices of the various components that make up the device. This can be seen by reviewing the equations that are disclosed in Kusano to model the devices. In fact, at column 12, lines 9-11 of Kusano, it is stated that the splitter 101 is manufactured with a precision for satisfying the expression (5) of the first embodiment. The equations utilize an index of refraction of the pair of prisms n_1 , an index of refraction of the adhesive layer n_2 , a difference in thickness between the thick and thin portions of the adhesive layer D, and a pixel pitch P (see for example Kusano, column 3, lines 34-49). If one or more films were included in the structure of Kusano, the index of refraction of those films would have to be considered in these equations, or the devices that were produced may not function as intended by Kusano.

Based on at least the arguments presented above, Applicant respectfully asserts that Kusano does not disclose an article that includes a film.

Schrenk's film

The Office Action asserts, having found a film (which Applicant continues to disagree with herein) and a first rigid cover, that Schenk provides a teaching of a polarizing film made of birefringent and oriented alternating layers of a polymeric material, and that such a film has advantages, and therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use Schrenk's polarizing film in a polarizing beam splitter of Kusano. Applicant respectfully disagrees with this statement.

As discussed above, Kusano provides equations that model the functioning of its devices. The values that are obtained from these equations, which are based on certain properties of the components of the devices dictate whether or not the devices will function for their intended purpose. Because the indices of refraction of the films are not taken into consideration in the equations, one of skill in the art would not have been motivated to add them to the structure

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because if they were added, one of skill in the art would not know whether the ultimate device would work for its intended purpose.

Even if one of skill in the art would have been motivated to utilize, or for the sake of argument, modify the film of; there would not have been any motivation to use the film of Schrenk. The films of Schrenk include coextruded bilayers of polymeric material that are stretched to orient the polymeric materials. Such films can be sensitive to physical stress because pressure exerted on the film can force the materials out of alignment. Therefore, one of skill in the art would not have been motivated to use them in a structure where there could be physical stress put upon them. The device of Kusano could cause physical stress on a polymeric film because of it's location between the two prisms that are placed slightly askew to provide the difference in thickness across the adhesive layer.

Katsumata's adhesive

The Office Action correctly states that Kusano does not teach a pressure sensitive adhesive, but continues on to assert that Katsumata teaches in column 4, lines 1-14 that by using a pressure sensitive adhesive (soft type adhesive) it is possible to suppress internal stress and optical distortion, and therefore it would have been obvious to one of ordinary skill in the art to use pressure sensitive adhesive to attach at least one of the covers of Kusano since it is desirable to reduce optical distortion in a polarization beam splitter (Office Action pages 3-4). As an initial matter, Applicant does not necessarily agree that a soft type adhesive as disclosed in Katsumata is a pressure sensitive adhesive as utilized by the Applicant. Furthermore, Applicant respectfully disagrees that one of skill in the art would have been motivated to modify Kusano by using a pressure sensitive adhesive to attach the two prisms disclosed in Kusano.

The adhesive layer of Kusano has a greater function than attaching the two prisms; the adhesive layer is an essential component of the overall functioning of the device. Kusano states that the difference in thickness between thin and thick portions of the adhesive layer is set equal to a predetermined value or lower based on a pixel pitch of the modulator (column 3, lines 18-21), and this in combination with properties of the prism function to eliminate distortion of a projected image (column 3, lines 28-29). The equations that dictate the functioning of the device (equation 5 for example in column 9 of Kusano) include the variable D, which is the thickest

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portion of the adhesive layer. In some of the equations D also refers to the difference in thickness between the thickest and thinnest portions of the adhesive layer (column 9, lines 41-43). The examples provide differences in thicknesses that range from a high of 59 micrometers (μm) to a low of 4 μm (column 10, lines 47-50 and lines 30-32). Based on this discussion one of skill in the art would recognize that the thickness of the adhesive layer is important to the functioning of the device and whether or not a device that is constructed will function as intended by Kusano.

The Office Action points to column 4, lines 1-14 of Katsumata as providing a teaching that by using a soft type adhesive, it is possible to suppress internal stress and optical distortion (Office Action, page 3), the Office Action continues on to assert that it would have been obvious therefore to modify Kusano by using the adhesives described in Katsumata because it is desirable to reduce optical distortions in a polarization beam splitter. Katsumata further describes the adhesives utilized therein as adhesives "exhibiting rubber-like performance or a silicon adhesive exhibiting rubber-like performance" (Katsumata, column 6, lines 22-24). Rubber-like performance could lead one of skill in the art to understand that the adhesive has expansive, contractive or malleable properties. Applicant respectfully disagrees that one of skill in the art would have utilized the adhesive of Katsumata in the device of Kusano because Kusano relies on the thickness of the adhesive layer across the layer in order for the device to function, therefore an adhesive that is malleable would not be desirable to utilize in such a situation because the thickness of the adhesive layer could change while the device were functioning.

Applicant also respectfully asserts that there is not motivation to modify Kusano by combining the adhesives of Katsumata because the proposed modification would render the device of Kusano unsatisfactory for its intended purpose. The device of Kusano relies on the difference in the thickness of the adhesive layer from the thinnest part to the thickest part of the adhesive layer. Knowing that this value was important, one of skill in the art would not have been motivated to make any changes to the device of Kusano that would affect the adhesive layer, and certainly not its thickness.

If, as stated by the Office Action that one of skill in the art would be motivated to utilize a pressure sensitive adhesive because it can reduce internal stress. So, if one of skill in the art did not want the layer to be modified, or physically changed during use, one would not use that

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component. Or more specifically, if the particular dimensions of the adhesive layer are one of the important factors, one of skill in the art would not utilize an adhesive that could perhaps be altered by internal stress in the device. If the device of Kusano utilized a pressure sensitive adhesive, expansion or contraction of the adhesive as a result of its ability to reduce internal stress could modify the ability of the device of Kusano to function for its intended purpose. According to MPEP §2143.01(V), if a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.

Based on the arguments presented above, Applicant respectfully asserts that independent claim 1 is not obvious over Kusano in view of Schrenk and Katsumata. Claims 8, 16, 18, and 24 (the other independent claims that stand rejected) are also not obvious because claim 8 comprises a first and second polymeric film, and a pressure sensitive adhesive; claim 16 comprises a multilayer reflective polarizing film and a pressure sensitive adhesive; claim 18 comprises the step of disposing a pressure sensitive adhesive between a polymeric multilayer reflective polarizing film and a first rigid cover; and claim 24 comprises the step of disposing a pressure sensitive adhesive between a polymeric multilayer reflective polarizing film and a first rigid cover, all of which were shown above to be non-obvious in light of Kusano in view of Schrenk and Katsumata.

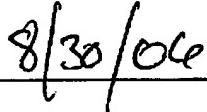
With respect to the Office Action's comments directed to claims 3, 9, 10, 11; and all statements regarding structural and pressure sensitive adhesives. The Office Action points to column 4, lines 1-14 of Katsumata as disclosing a soft type adhesive. At page 3 of the Office Action, a soft type adhesive is equated with a pressure sensitive adhesive, which thru its use can suppress internal stress and optical distortion. The Office Action continues on to assert that column 6, lines 21-27 of Katsumata describes a UV adhesive, which would be a structural adhesive (Office Action, page 4). However, column 6, lines 21-27 of Katsumata states that the adhesive layer is a soft type adhesive and may, for example be a UV adhesive exhibiting rubber-like performance or a silicon adhesive exhibiting rubber-like performance. Katsumata provides a UV adhesive as an example of a soft type adhesive. However, the Office Action has considered the UV adhesive as fitting within a structural adhesive category, it is improper to cite to

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Katsumata for this assertion. Applicant respectfully asserts that one of skill in the art considers pressure sensitive adhesives and structural adhesives as different categories of adhesives and therefore an example of one category cannot fit within the other category.

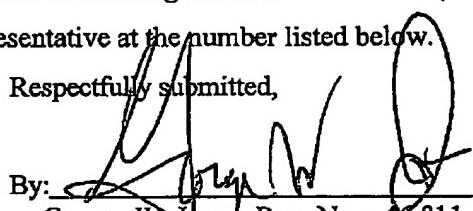
CONCLUSION

In view of the above, Applicant respectfully requests withdrawal of the rejection and allowance of the claims. Prompt passage to issue is earnestly solicited. Should the Examiner feel a telephone interview would be helpful in advancing this case to allowance, Applicant invites the Examiner to contact their representative at the number listed below.

Date

Respectfully submitted,

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